University of Toronto

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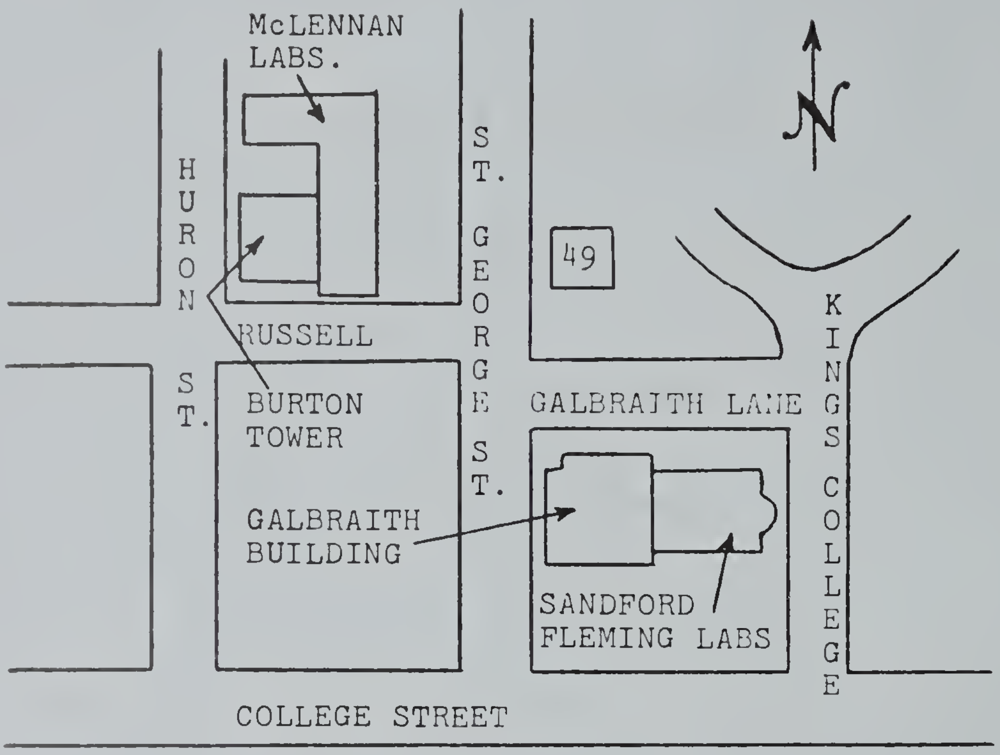
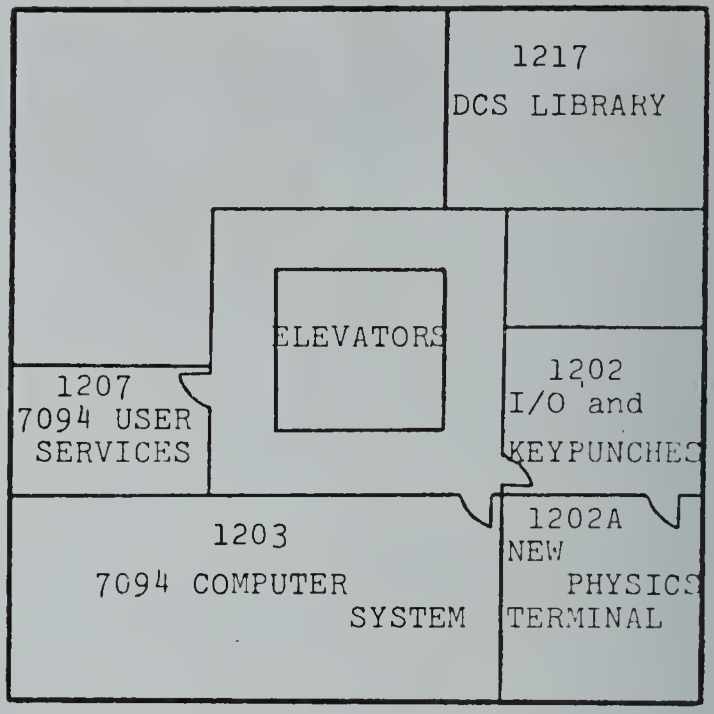
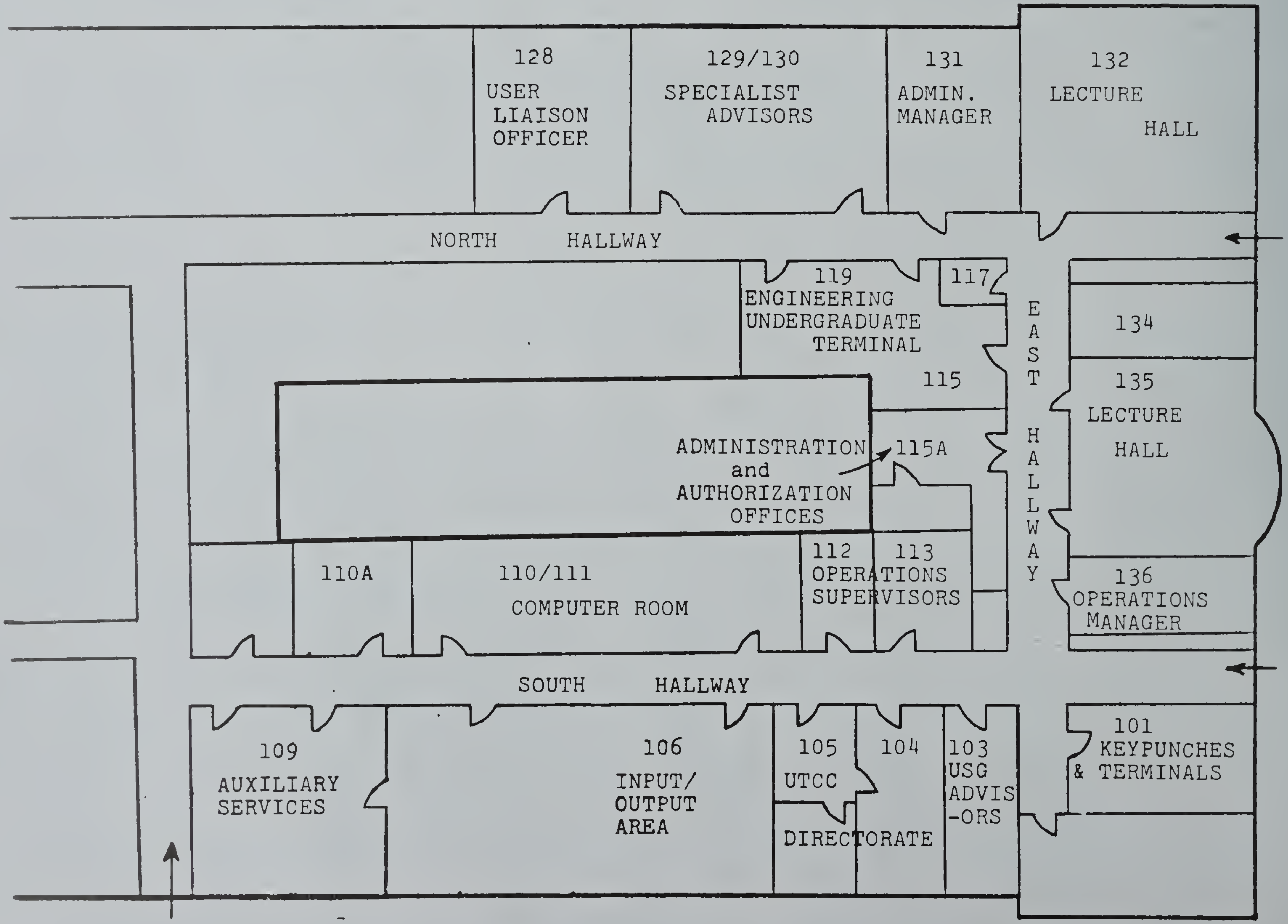




FLOOR PLAN: 12th FLOOR BURTON TOWER

FLOOR PLAN: UNIVERSITY OF TORONTO COMPUTER CENTRE
SANDFORD FLEMING LABORATORIES



SUGGESTIONS

J. Marsh

The number of suggestions received continues to decline - 26 this month as compared to 31 last month. These suggestions are broken down into the following general categories: technical issues (9), Computer Centre policies (2), equipment and physical plant ideas (3), advising services (1), general job handling procedures (3), publications (4), and miscellaneous (4). Some of these are quoted and discussed below.

Suggestion: "Institute the WATFIV Job card as used at other installations; i.e., with the options of RUN= , KP= , TIME=etc."

Reply: Will be done when the new version of WATFIV is implemented later in the year. However, a debate over fixed vs free format is as yet unresolved.

Suggestion: "The concept of self serve HASP entry at the Arts and Science HASP terminal is great! Please arrange for evening and weekend access."

Reply: UTCC is in the process of arranging to leave this terminal open after hours for users who are familiar with the operating techniques of the S/360 Model 20. Meanwhile, recall that EUT is open to self service batch processing after normal operating hours, usually after midnight.

Suggestion: "Could another special print forms option be added to print 8 lines per inch on standard and unlined paper?"

Reply: Refer to the article "Special Forms on Printers" in the S/370 General Services section of this Newsletter.

CHANGES IN USER SERVICE ORGANIZATION

C. A. Ford

Mr. Robin Williams has resigned from the Computer Centre after two and one half years of service as Manager of the Users' Service Group. Robin moves to Ontario Hydro, where he will be a project manager in computer planning. Our best wishes go with him.

The Centre has been fortunate to gain the services of Mr. William E. Greene as User Liaison Officer. Bill will open this new position, taking on some of Robin's earlier duties. The main function will be to promote closer contact between the Centre and present or potential computer users, particularly early in the life of the users' projects. Mr. Greene will be responsible directly to the Director, Dr. Wilson. No professional staff other than Mr. Greene will be associated with this function initially, although this area is expected to grow in the future.

Mr. Greene has had over 12 years of experience in computing and has served with a number of computer firms including Xerox Data Systems and, more recently, Consolidated Computer Limited. At Consolidated Computer he was director of software development. He has also worked as an independent consultant.

Mr. Greene will occupy the office previously occupied by Mr. Williams (SF-128, phone 928-2694).

The balance of the Users' Service Group functions have been absorbed into S/370 Services, managed by Dr. Dave McNaughton. Mr. Stan Yagi will provide the direct supervision of this group.

TOURS OF UTCC S/370 FACILITIES

Derry Cox

This month UTCC was pleased to host a tour of Professor J. C. Ogilvie and his students in APS104x through the facilities. The objectives of this tour were twofold; we wished to aquaint the students with the services offered and demonstrate the resources available to us from the /370-165 and how we manage these resources to achieve optimum performance from the system and provide efficient service to the users.

At the beginning of the tour the guests were introduced to some basic concepts of operation of the S/370-165 hardware and the purpose and functions of HASP, OS and HSJS MONITOR. Following the lecture, the students were divided into smaller groups and conducted through the S/370 console area, the I/O area and EUT. At each point we attempted to explain the contribution of each hardware device to the system, and our policies of operation of the different devices for maintaining our efficiency and quality standards.

We welcome all groups of users who would be interested in touring our S/370 facilities. Tours such as the typical one described above help give the users better insight into how and why our services are offered as they presently are, what our problems are, and how we plan to solve them and improve our level of service. Interested staff members may arrange similar tours by contacting Carol Davidson, SF-130 (telephone 928-7180).

COMPUTER MONITORING WORKSHOPS

Janet Marsh

A Computer Monitoring Workshop will be held at Brigham Young University on April 6 and 7, 1972. This workshop will cover all major aspects of computer performance measurement inclusing hardware and software monitors. It is intended for those people with an active interest in learning more about computer monitoring. Enrolment is limited to twenty participants per section. The total cost of the workshop is $135.00 which includes lodging, meals and workshop fee. Anyone interested in attending should contact:

Mr. Ronald F. Mulberry,
Special Courses and Conferences,
242 HRCB,
Brigham Young University,
Provo, Utah 84601

(phone 801-374-1211, ext. 3784)

NEWS FROM THE DEPARTMENT OF COMPUTER SCIENCE

Corley Phillips

Happy New Year!

The annual celebration of the Chinese New Year was held on February 11 at the Chinese Garden Restaurant. The forty DCS partygoers were served Mandarin style food. The festivities continued after dinner at Professor John Mason's apartment.

Leaside High School

An unusual class has been held each Thursday afternoon this year. Under the guidance of Paul Sorenson, a graduate student, four high school students from Leaside have been learning PL/I and working on an ambitious project of their own design: an airline operations simulation.

The students had completed the course in Computer Science offered in grades 11 and 12 and wanted to continue their studies in this area in grade 13. Arrangements were made by Mr. C. R. Walton, Head of Mathematics at Leaside, with the Board of Education to offer a half credit course given by the Computer Science Department. This joint effort has opened the lines of communication between the two educational levels and given high school students the opportunity to do advanced work.

Enquiries Regarding Part-Time Studies

Recognizing that the University has a role to play in meeting the needs of the community at large, this department sent out enquiries in order to ascertain which course would be best received if we were to increase the number of courses offered in the evening or late afternoon hours. Courses in the area of Operating Systems drew the most interest, followed by courses in Data Processing, Information Structures and Compiler Design. The returns from the questionnaire will be used as we gradually expand both the number and level of Computer Science classes available to part-time students.

Secondary School Teachers Symposia

The first of three Saturday symposia to be given this spring, will be held on March 11. The three speakers for this day are:

"Programs are Only for the Eyes of the Computer", Professor Ric Holt.

"Algebra and Algorithms", Professor John Lipson

"Computers as a Data Processing Tool", Professor Sheldon Glasser.

Anyone interested in Computer Science or Data Processing at high school level is cordially invited to attend on March 11, and/or April 15 and May 6. Registration can be made with Mrs. Corley Phillips.

THE DEPARTMENT OF COMPUTER SCIENCE LIBRARY

Recent Acquisitions

Blackman, Sheldon, and Goldstein, K.M.
An Introduction to Data Management in the Behavioral and Social Sciences.
New York, Wiley, 1971.

Engeler, Erwin, ed.
Symposium on Semantics of Algorithmic Languages.
Berlin, Springer-Verlag, 1971

Machine Intelligence 6.
Proceedings, 1971.
Edinburgh, University Press, 1971.

International Joint Conference on Artificial Intelligence,
2d, London,
Sept. 1971.
Advance Papers of the Conference.
London, British Computer Society, 1971.

Krylov, Vladmir Ivanovich, and Skoblya, N.S.
Handbook of Numerical Inversion of Laplace Transforms.
Jerusalem, Israel Program for Scientific Translations, 1969.

Ortega, James M. and Rheinboldt, W.C.
Interative Solution of Nonlinear Equations in Several Variables.
New York, Academic Press, 1970.

Rabinowitz, Philip, ed.
Numerical Methods For Nonlinear Algebraic Equations.
London, Gordon and Breach, 1970.

Sard, Arthur and Weintraub, S.
A Book of Splines.
New York, Wiley, 1971.

Scheid, Francis.
Schaum's Outline of Theory and Problems of Numerical Analysis.
New York, McGraw-Hill, 1968.

Scientific American.
Computers and Computation.
San Francisco, W.H. Freeman, 1971

Smullyan, Raymond M.
First-order Logic.
New York, Springer-Verlag. 1968.

Stein, Marvin L. and Monro, W.D.
Introduction to Machine Arithmetic.
Reading, Mass., Addison-Wesley, 1971

Missing Books

The following books are missing from the Department of Computer Science Library for the month of January. Please return them as soon as possible.

Knuth	The Art of Computer Programming, v. 1, copy 2
IFIP	Working Conference on Symbol Manipulation Languages, Pisa.
Sprague	Information Utilities
Journal	Annual Review in Automatic Programming, v. 6, part 3
Borko	Automated Language Processing

Gries Compiler Construction for Digital Computers, copy 1

PERSONNEL CHANGES

J. Schick

A number of personnel changes have occurred since our last publication.

Raymond Anka and Wayne Shimizu have left for employment elsewhere. In their place, Operations welcomes John Krasnewych and Mrs. Carol Tomchishi. Patrick O'Brien, clerk-messenger for the Computer Centre, has also left and has been replaced on permanent staff by Jose' Luzadas, a move up from part-time staff.

PRODUCTION STATISTICS

Jennifer Schick

The overall increase in production for all systems from December to January was 3%, with the greatest increase, 46% on the S/370 General Purpose Job Stream. Activity on the High Speed Job Stream has shown a further decrease.

Table II continues to show an increase in production since last year on both the GPJS and HSJS and an overall increase of 73%.

SYSTEM	NOV '71	DEC '71	Jan '72	JAN/DEC CHANGE
GPJS S/360-'71 S/370-'72	21,113	18,280	26,743	+ 46%
7094	903	726	922	+ 27%
HSJS	130,560	109,899	104,748	- 5%
TOTAL	152,576	128,905	132,367	+ 3%

TABLE I: Jobs Run - November, December '71, January '72

SYSTEM	JAN '71	JAN '72	1971/1972 CHANGE
GPJS S/360-1971 S/370-1972	16,536	26,743	+ 62%
7094	1,533	922	- 40%
HSJS	58,527	104,748	+ 79%
TOTAL	76,596	132,367	+ 73%

TABLE II: Comparison Of Jobs Run Jan '71 vs Jan '72

SYSTEM RELIABILITY

Roy Finlayson

The system reliability for the month of January on the System/370-165 is shown in the following table. The reliability of the System/360 for the month of December is shown for comparison.

	MONTH	UPTIME	MTBF
LOCAL & REMOTE GENERAL PURPOSE PROCESSING	December	96.2%	10.7 hrs.
	January	93.5%	4.6 hrs.

Both uptime and MTBF decreased compared to December as the system experienced hardware and software problems incidental to the conversion from System/360-65 to System/370-165. The recovery of the earlier level of reliability is expected to occur soon, reflecting the intensity of shakedown debugging of all components.

CREDIT REQUESTS FOR JANUARY

Herb Kugel

The percentage of credit requests in January dropped by 50%. Hardware problems with the unit record equipment accounted for most of the credit requests.

	JANUARY			DECEMBER
	S/370	7094	TOTAL	TOTAL
HUMAN	11	0	11	13
SOFTWARE	13	0	13	34
HARDWARE	18	0	18	4
TOTAL	42	0	42	51
% OF JOBS RUN			.11%	.22%

SYSTEM STATUS BULLETINS ISSUED

Janet Marsh

4:72:1	New ABEND/ABDUMP Format in MVT Dumps
4:72:2	Error in SSB 2:72:1
4:72:3	Warning to CALCOMP Users
5:72:1	Revised Format for SPEC Input
6:72:1	Version 3 of Statistical Package for the Social Sciences
7:72:1	Revised CALCOMP Package to be Available on Monday, February 14, 1972
8:72:1	New Listing Function Available at the High Speed Terminals
9:72:1	Minimum REGION Size
10:72:1	HSJS at Remote Terminals
11:72:1	Guttman Scale Subprogram in SPSS Version 3

OVERALL SERVICE FACTOR

C. A. Ford

A three-layered system of service priorities was introduced by the Computer Centre in mid-1970. The management of the Centre found, quite early, that the users responded to peaks in demand on S/360 service by tending to make greater use of the RUSH (PR=8) service level. The opposite trend, toward IOI (PR=4), accompanied a slacking of demand or an improvement of system behaviour. These ebbs and flows were consistent with the expectations held for the scheme.

An analysis has now been carried out, quantifying the pressure upon the facility as indicated by the priority mixture. The Overall Service Factor has been defined as the ratio of what users were willing to pay for service, priority level included, to what the same volume of work would have cost at the standard ASAP (PR=6) level. (Recall that PR=4 costs only 60% of the standard rate which applies for PR=6.)

The Factor has been calculated for the last seventeen weeks of S/360-65 service, ending on December 24th, 1971, and for the 1972 S/370-165 experience to date of writing. Fig. I shows the pressure pattern for this span of time, with a zero point for the Christmas/New Years week of S/370 introductory testing.

The graph of jobs run per system uptime hour (Fig. II) shows an interesting resemblance in shape to that of the Factor, at least until the S/370 took over in 1972. This suggested plotting the Service Coefficient vs Jobs per Hour (Fig III). As might be expected, with a given computer the Factor increased directly with the jobs per hour.

The cluster standing off the line on Fig. III belongs to the 1972 S/370 era. It shows roughly twice the throughput for a given Overall Service Factor. This reduction in average priority premium augments the economy to the user introduced by the higher performance of S/370 through the change in CPU and Core pricing.

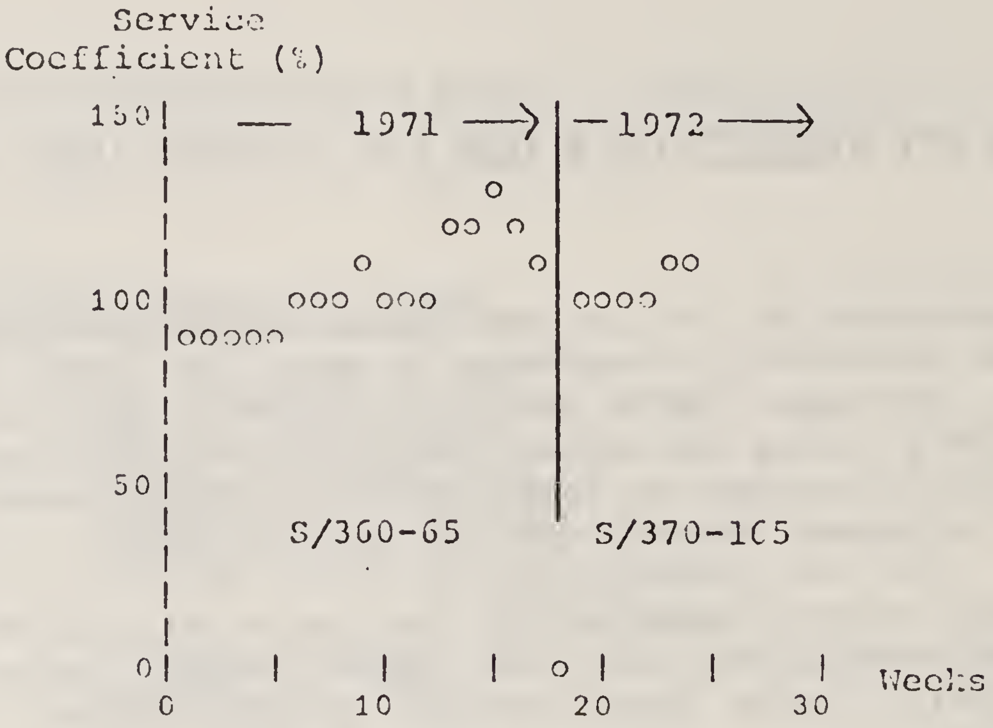


FIG I Service Coefficient vs Weeks

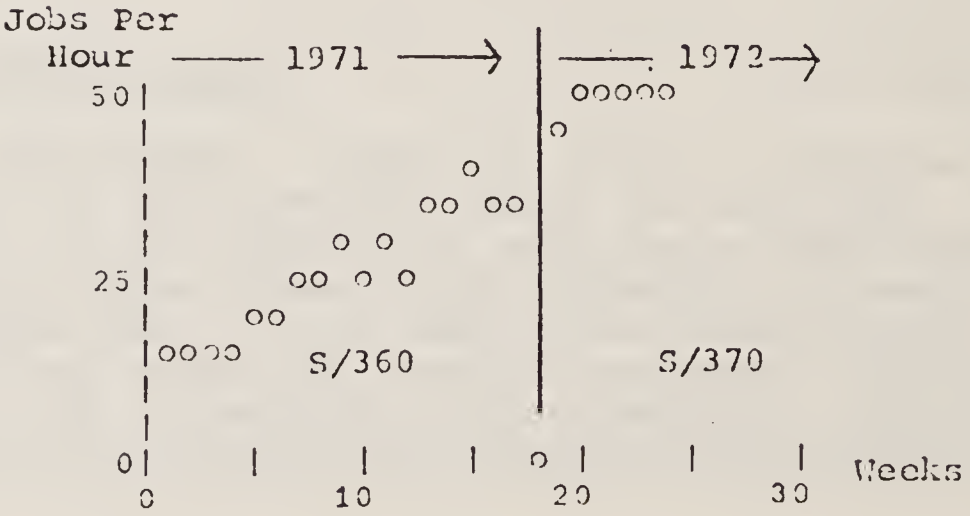


FIG II Jobs Per Hour vs Weeks

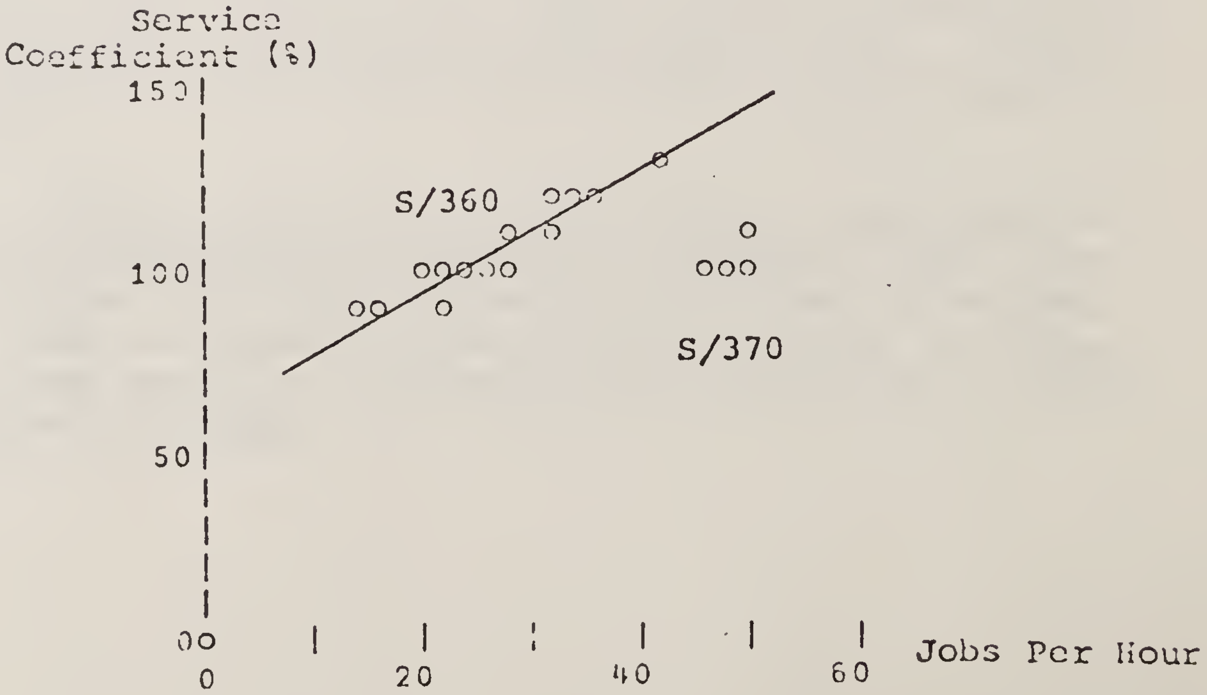


FIG III Service Coefficient vs Jobs Per Hour

CONVERSATIONAL REMOTE JOB ENTRY (CRJE)

R. Finlayson
S. Goldfarb

When the System/360 Model 65 was moved from the Sandford Fleming Laboratories to the McLennan Physical Laboratories in mid-November, the CPS-Remote Job Entry service had to be discontinued. At that time we indicated (in Newsletter #82) that we would try to remedy the situation as early as possible. Thus, in replacement of CPS/RJE, the IBM Conversational Remote Job Entry system (CRJE) will be made available to our user community on March 1, 1972. The CRJE system resides on the System/370 computer and provides a facility for users at 2741 communications terminals to submit programs for execution.

UTCC is actively engaged in a project to establish a communication facility between the System/360 Model 65 and the System/370 Model 165. Our interest in a communication link is to enable files to be transferred between the two computer systems, and to provide the "conversational" aspect of the CRJE system on the Interactive computer system.

The support of teletype terminals under CRJE is under development. This facility should become available during the month of March.

An authorization code, an account number and a password are required to use the CRJE system. These may be obtained from our Accounting Office, Room 115A Sandford Fleming Laboratories. A copy of the manual IBM SYSTEM/360 OPERATING SYSTEM: CONVERSATIONAL REMOTE JOB ENTRY TERMINAL USER'S GUIDE (Form No. GC30-2014) is available free-of-charge in SF Room 115A to all authorized CRJE users.

One cylinder of disk space will be allocated on the CRJE disk pack for each CRJE account number obtained with additional space available on request.

Public 2741 communications terminals are available in SF Room 101. If you desire your own terminal please contact Mr. J. Palter, Room 131 Sandford Fleming Laboratories, or call 928-8948.

The hours of service for CRJE are as follows:

Monday to Friday	- 8:00 a.m. to 10:00 p.m. and midnight to 6:00 a.m.

(Service may be disrupted after 3:00 a.m.
on occasion)

Saturday & Sunday - 9:00 a.m. to 5:00 p.m.

Phone numbers of interest to CRJE users are as follows:

- dial-up terminals: 928-7233, 928-7381, or 928-7386
- 2741 terminal problems: 928-7107
- system status: 928-7421

Advice on the operation of CRJE is available from:

- Ian Darwin, SF Room 103, phone 928-8599

NEW VERSION OF CALCOMP SUPPORT AVAILABLE

Razia Aziz

A new version of the CALCOMP support software corresponding to the current edition of the manual "Plotting with CALCOMP Using OS/360" was implemented this month. Changes have been made to streamline the batch plotting procedures so that there will be better turnaround and less chance of lost jobs or accounting errors. The revised batch plotting procedure no longer requires a UTCC Job Form for plotter setups such as India ink or wide (30 inch) paper. Instead, the user's program should call a special entry, PLTSET, which produces a short message to the CALCOMP operator and stops the plotter. (Normally the plotter will not stop between jobs.) For further information on the use of PLTSET refer to the manual "Plotting with CALCOMP Using OS/360", available in SF Room 131 at a cost of $0.50 per copy.

Accounting for batch CALCOMP jobs will be based on the plotter usage, in minutes, which will be written at the end of the plot, and on the user output if PLOTND was called. Plotting from a user-owned tape, which still requires a UTCC Job Form, will be accounted for by using the meter as it was with the old version.

Users should also be aware of the following points:

(1) The Zip mode feature may be suppressed by making the fourth argument to PLOTST negative. It is advisable to disable the Zip mode if India ink is being used.

(2) Supplying a fifth argument to PLOTST no longer has any effect.

(3) The new package will have no effect on users invoking CALCOMP via the existing FORTCALG, FORTCALH, or FORTCALL procedures. However, anyone running a job using load modules containing the old CALCOMP routines will have difficulties and should re-link edit their load modules to include the new routines. Please consult the advisor in SF Room 103 if you have any problems.

(4) Users are advised to use the new FORTCALL procedure (FORTRAN compile, load and go with CALCOMP).

(5) CALCOMP backlog notices will be posted on the Bulletin board in the hallway beside SF Room 109.

REDUCTION IN MINIMUM REGION SIZE

Herb Kugel

The region size for user programs was reduced this month from 70K to 30K, thus allowing users greater flexibility and cost saving on their program runs. Users should be aware of the following points.

(a) The user may now ask for and receive any region size down to a minimum of 30K.

(b) If a region size is omitted, a default of 70K will be assigned.

(c) If a user requests less than 30K he will obtain the new minimum of 30K.

Most users should experience no difficulty, but there are users who presently ask for regions in the 30K - 70K range. Rather than receiving the former minimum region of 70K they will obtain exactly what they ask for.

THE S/360-S/370 PRICING STUDY

C. A. Ford

The Computer Users' Committee and the Computer Centre have collaborated on a study of the performance of the S/360 and S/370 computers, along with the prices established for the services. The objective of the study has been to validate the expectations for the new computer, especially that core and CPU costs to user jobs should average 30% less than before and that no job should cost more.

The Centre is completing its analysis of the tests. The results will be presented to the Committee and will become available to interested users thereafter. The data indicate that the expectations have been satisfied.

S/370 APPLICATIONS SOFTWARE SUPPORT

Bill Hayes

This article marks the establishment of an S/370 software support function to coordinate the support service which UTCC provides for applications software of various kinds, including all of the following:

- mathematical and scientific libraries and packages;
- statistical libraries and packages;
- operations research packages;
- file handling and data base management packages;
- computer graphics libraries and packages;

Our initial activities will involve the evaluation of additional CALCOMP software and the establishment of an exchange facility for graphics routines for UTCC users.

Any user interested in participating in the evaluation of new software or contributing to current or prospective software support activities should contact Mr. Bill Hayes at 928-7437, Room 130 Sandford Fleming Laboratories.

DISP=OLD UNDER OS RELEASE 20.1

Janet Marsh

The following is adapted from the November 1971 issue of the University of Waterloo Computing Centre Newsletter, describing a problem which also occurs occasionally here at UTCC.

If two or more jobs, concurrently executing in the system, attempt to access the same data set, and DISP=OLD (rather than DISP=SHR) has been specified by these jobs, an ENQUEUE problem results. In other words, one job must sit and wait until the other job has completed execution. Under Release 20.1, the operator is notified of this situation, and he has several options at his disposal. He can reply WAIT and the second program will wait until the first job has finished, or he can reply CANCEL and the second job will be cancelled. The operators at UTCC usually reply WAIT in such cases. However, replying WAIT will tie up the system. Therefore, every attempt should be made to use DISP=SHR,thus avoiding the need to WAIT. DISP=OLD is required only when the data set is being written into so as to prevent concurrent access to the data set.

SPECIAL FORMS ON PRINTERS

Don Gibson

The Computer Centre has recently added a new series of "standard" Special Forms to include eight lines per inch printing. All of the "Standard" Special Forms are available at the local Input/Output room (106 Sandford Fleming). However, users wishing special output to be printed at the remote are advised to check with the supervisor of the terminal, or with Alan Jones the I/O Services Supervisor. In the event you have requirements that cannot be satisfied at that remote terminal, the job will be printed locally.

The following is a complete list of form parameters which may be specified on your Job card; following the form parameter is the type of form and the printing details which each will return:

FORM PARAMETER	TYPE OF FORM	TYPE OF PRINT TRAIN	LINES PER INCH
1	Blank Paper	Standard (PN)	6
2	2 Part Paper	"	6
3	3 Part Paper	"	6
4	4 Part Paper	"	6
5	Address Labels	"	6
6	Standard Paper	"	8
7	Blank Paper	"	8
8	2 Part Paper	"	8
9	3 Part Paper	"	8
10	4 Part Paper	"	8
19 local only	Blank Paper	TN	6

If a form parameter is omitted from the JOB card, standard paper at 6 lines per inch will be used.

We also remind you that "non-standard" Special Forms can be catalogued into the Special Form Log through the I/O Shift Supervisor at the local I/O area. Your comments, questions, or suggestions are welcome.

STATISTICS ON CATALOGUED PROCEDURE USAGE

Robin Williams

The counters for the catalogued procedures and statistical libraries have remained intact since January 6, 1972. These figures cover the period from then until February 1, 1972, all runs being on the S/370-165.

The processor split is as follows:

Language	Number of Jobs	Percentage
FORTRAN G	4637	62.6
PL/I	1167	15.8
Assember (F & G)	547	7.4
COBOL U	256	3.5
FORTRAN H	229	3.1
All Others	263	7.6
	7399	100.0

The proportion of FORTRAN G jobs has held constantly at around 62 - 63% since the figures have been available. PL/I has dropped from 21% in November to 16% in January. Assembler has increased slightly. COBOL U figures are given here for the first time, since the new procedures were only available with the counter late in November. Somewhat to our surprise COBOL U accounts for over 3% of the jobs run and we shall continue to watch this situation. FORTRAN H has also shown a considerable increase in usage this past month moving up from 1.9% in November to 3.1% in January.

The two PL/I Version 5 procedures PL1V5CLG and PL1V5LDG were accidently rendered inoperable early in January when the system catalogue entries for the data sets they use were damaged. The entries were restored to point to Release 20.1 Version 5 of PL/I as soon as this error was reported to UTCC. However it seems that most users have now switched to the regular PL/I procedures as suggested in Newsletter #83.

It is interesting to note that only two of the special Release 18.6 procedures, both for FORTRAN G, were used in January. This is being taken to indicate that virtually no problems are being encountered with the Release 20.1 processors. Consequently, the Release 18.6 processors and procedures will be removed from the system in the near future. Please watch for an SSB announcing the date. Any user who has any requirement to retain a Release 18.6 processor should contact Herb Kugel in Room SF-130, phone 928-7286 as soon as possible.

PROCEDURE USAGE January 6, 1972 to February 1, 1972

Procedure	Number of Jobs	Percentage
FORTGCLG	2315	30.9
PL1LLDGO	833	11.1
FORTCALG	779	10.4
FORTGLDG	646	8.6
FORSGCLG	535	7.1
PL1LFCLG	334	4.5
COBUCLG	256	3.4
FORTHCLG	229	3.1
ASMFCLG	213	2.8
ASMGCLG	163	2.2
FORSGLDG	142	1.9
FORTGLG	116	1.5
FORTGCL	104	1.4
ASMFCL	88	1.2
ASMGC	83	1.1
Others (25 procs.)	563	7.5
Incorrect names	100	1.3
	7499	100.0

STATISTICAL LIBRARIES

Program	Number of Jobs	Percentage
BMD02R (Stepwise Regression)	82	9.4
BMDX64 (General Linear Hypothesis)	25	2.9
BMDX82 (Analysis of Covariance)	23	2.7
BMDX75 (Canonical Analysis)	22	2.5
BMD05S (Guttman Scale #1)	20	2.3
BMD01V (Analysis of Variance, one way design)	15	1.7
BMD06R (Asymptotic Regression)	12	1.4
Other BMD	54	6.4
TOTAL BMD	253	29.1
SPSS	615	70.9
TOTAL	868	100.0

Of the 615 SPSS jobs run, 311 or slightly more than half used Version 3 which was announced in SSB's 78:71:1 and 6:72. SPSS users should note that Version 3 has been the production version since January 21, 1972.

APL EXTENSIONS

Sam Goldfarb

The following additions to APL are now available:

(1) File subsystem
(2) Report formatting functions
(3) Tab support
(4) Extended 'COPY' command
(5) 'WALKAWAY' function
(6) ')SEAL' command
(7) '$' as a legal character
(8) changes to "quad prime"
(9) ')BLOT' command
(10) Overstriking of sign-on statement

A further description is given in APL Public Library 1,

Type:

```
)LOAD 1 NEWS
PRINT 5
```

For an index of news items, type INDEX.)

Manuals describing the APL file facility and the report formatting functions are available from: Mrs. C. Pidcock, Room 115A Sandford Fleming Laboratories, phone 928-8703 at the cost price $1.00 and $0.70 respectively. Pocket/purse size APL reference cards are also available at the below cost price of $0.25.

SYSTEM RELIABILITY

Sam Goldfarb

The tables below summarize the time lost out of scheduled hours of production for the period January 3 to January 31, 1972. The total number of scheduled hours of operation during this period was 473.5. Table I shows the total time lost due to late starts (IPLs). Table II shows the time lost due to system failures for each of the systems; three unscheduled IPLs were required as a result of the failures. The total losses represent 0.73%, 0.67% and 0.66% of the scheduled time for APL, ATS, and CPS respectively. The uptime for each of APL, ATS and CPS was 99.3%.

Day System	Sun 9:00	Mon 0:00	 9:00	Tues 9:00	Wed 9:00	Thurs 9:00	Fri 9:00	Sat 9:00	Total
APL	10	9	0	12	0	0	27	38	96
ATS	10	14	0	13	4	0	0	37	78
CPS	10	17	0	11	2	0	0	33	73

TABLE I Total Time Lost at Scheduled IPL (mins)
January 3 to January 31, 1972

System	Date	Time	Time	Time	Reason
APL	Sat. Jan 8	9:20	9:24	4 min.	CPU Storage Check (hardware
	Fri. Jan 14	22:56	23:05	9 min.	Disk Errors (hardware)
	Thurs. Jan.20	2:40	3:32	52 min.	City Power Failure
	Thurs. Jan 20	3:45	4:30	45	Storage Problems + Faulty Relays (hardware)
ATS	Sat. Jan 8	9:20	9:25	5 min.	as above
	Fri. Jan 14	22:56	23:00	4 min.	as above
	Thurs. Jan 20	2:40	3:33	53 min.	as above
	Thurs. Jan 20	3:45	4:30	45 min.	as above
	Fri. Jan 28	11:44	11:48	4 min.	Data Set Overflow
CPS	Sat. Jan 8	9:20	9:26	6 min.	as above
	Fri. Jan 14	22:56	23:02	6 min.	as above
	Thurs. Jan 20	2:40	3:36	56 min.	as above
	Thurs. Jan 20	3:45	4:30	45 min.	as above

TABLE II: System Failures January 3 to January 31, 1972

HIGH SPEED JOB STREAM AT REMOTE TERMINALS

Alan Jones

The High Speed Job Stream (HSJS) facilities are now available free-of-charge at the following remote terminals: Aerospace, Erindale College, New Physics, Scarborough College, and the School of Business.

This service is available at the following times providing the terminals are open:

Monday to Friday - 8:00 a.m. to 10:00 p.m.
Saturday & Sunday - 9:00 a.m. to 5:00 p.m.

The language processors available are WATFIV, ALGOL W, PLUTO, PL/C, ASMG, and SIMON. Consult section 5.2 of the Users' Reference Manual for additional information.

The execution limits, with their defaults, are as follows:

time:	maximum = 3 seconds, default = 1 second
lines:	maximum = 300 lines, default = 60 lines
pages:	maximum = 10 pages, default = 2 pages

To access the HSJS facility, use the // JOB cards provided at each of the terminals. This // JOB card should then be followed by the $JOB card for the desired processor. Prepunched and preprinted colour-coded $JOB cards are available at each of the remote terminals providing this service.

Please note that your output will not include header or trailer pages.

Do not use /*PRIORITY cards as this will only delay the return of your job.

THIS SERVICE IS FREE!!

LISTING FUNCTION AVAILABLE

Alan Jones

A listing function is now available free-of-charge at the High Speed Job Stream terminals. It may be used to list any punched card with the exception of // JOB, $JOB, or OMR cards. JOB cards must not be included in your deck as they will terminate the listing function. A //JOB card will cause the cards following it to produce no output. A $JOB card will cause cards following it to be be treated as input by the named HSJS processor, with unwanted results. /* cards may be included in your deck but they will be ignored.

To use this facility place a $JOBRL card in front of the cards to be listed. Prepunched and preprinted $JOBRL cards are available at the terminals.

PRODUCTION STATISTICS FOR THE HIGH SPEED JOB STREAM

John Lees

The accompanying histograms show the total number of programs run through the High Speed Job Stream during the month of January, as well as a breakdown of those jobs between EUT and ASUT. They show a continuing decrease in the total number of jobs processed - a decline of 7.4% between December and January.

Recall that the types of jobs are WATFIV (W), ALGOL W (G), PL/C (C), PLUTO (P), ASMG (A), and SIMON (S).

```
ALL    JOB SUMMARY  *************  FOR 01-310172
      W      G      C      P      A      S    TOT TIME
    117      4      1      3      8      6    139  8+WWW
    337     21      7     10     16     16    407   |WWWWWWWWWW
    562     21     15     14     56     47    715   |WWWWWWWWWWWWWWWWWAS
    925     24     34     26    109     66   1184   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWCAAASS
    879     35     20     23    121    156   1234  9+WWWWWWWWWWWWWWWWWWWWWWWWWWWGAAASSSS
   1034     34     54     22    128    107   1379   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCAAAASSS
   1301     41     34     49    131     88   1644   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCPAAAASS
   1446     53     23     58    170     98   1848   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGPAAAAASSS
   1466     55     37     33    178    107   1876 10+WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCPAAAAASSS
   1526     37     30     54    157     95   1899   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGPAAAASS
   1561     33     31     50    156    139   1970   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGPAAAASSSS
   1656     48     56     76    166    173   2175   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCPPAAAAASSSSS
   1824     73     64     26    192    153   2332 11+WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCCAAAAAASSSS
   1972     64     74     15    193    126   2444   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCCAAAAAASSS
   1933     74     86     22    215    147   2477   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCCAAAAAASSSS
   1827     64     70     17    221    147   2346   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCCAAAAAASSSS
   1811     84     61     32    198    125   2311 12+WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCPAAAAAASSS
   1937     67     54     22    241    116   2437   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCAAAAAAASSS
   2049     68     65     29    187    156   2554   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCCAAAAASSSS
   2053     69     71     44    251    109   2597   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCCPAAAAAAASSS
   1900     84     73     36    236    212   2541 13+WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCCPAAAAAAASSSSSS
   2022     88     67     28    239    161   2605   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCCAAAAAAASSSSS
   1908     93     61     46    245    126   2479   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCPAAAAAAASSS
   1849     71     68     57    226    134   2405   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCCPAAAAAAASSSS
   1996     95     56     44    183    107   2481 14+WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCPAAAAASSS
   1899     81     59     28    212     77   2356   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCAAAAAASS
   1968    105     56     31    191     77   2428   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGGCAAAAASS
   2123     96     63     29    187     96   2594   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGGCAAAAASSS
   2063     80     76     47    191    115   2572 15+WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCCPAAAAASSS
   1973     81     81     32    202    113   2482   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCCPAAAAAASSS
   2061     79     91     50    212    123   2616   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCCPAAAAAASSS
   2226     91     87     37    297    142   2880   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCCPAAAAAAAAASSSS
   2078     77     77     34    253    151   2670 16+WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCCPAAAAAAASSSS
   2210     73     56     41    271    141   2792   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCPAAAAAAAASSSS
   2067     98     75     57    231    121   2649   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGGCCPAAAAAAASSS
   1978     90     66     59    202    118   2513   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCCPAAAAAASSS
   1373     40     41     61    124     69   1708 17+WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCPAAASS
   1383     47     61     54     94     54   1693   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCPAAS
   1373     48     40     53    134     60   1708   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCPAAAAS
   1125     46     43     32    122     34   1402   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCPAAAS
   1074     40     29     39    131     49   1362 18+WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGPAAAAS
   1050     19     40     35    142     21   1307   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWCPAAAA
    949     33     25     27    125     21   1180   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWGAAA
    845     58     33     43     96     43   1123   |WWWWWWWWWWWWWWWWWWWWWWWWWWGCPAAAS
    817     29     27     16    101     16   1006 19+WWWWWWWWWWWWWWWWWWWWWWWWWAAA
    938     45     21     13     82     17   1116   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWGAA
   1199     22     31     31    106     27   1416   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWAAA
   1288     35     29     21    135     30   1538   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGAAAA
   1119     26     15     19    134     26   1339 20+WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWAAAA
   1071     25     33     15    119     24   1287   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWCAAA
   1002     28     29     17    116     33   1225   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWAAAS
   1239     35     33     16    110     36   1469   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCAAAS
   1279     49     38      3    142     26   1541 21+WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCAAAA
   1215     39     42      7    113     32   1448   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCAAAS
   1209     46     39      6    122     57   1479   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCAAAS
   1007     48     26      5    164     22   1272   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGAAAAA
  ----- ------ ------ ------ ------ ------ ------ 22+---------+---------+---------+---------+---------+---------+---------+---------+
  83100   3108   2674   1804   9086   4890 104660   0       320       640       960      1280      1600      1920      2240      256
```

```
EUT    JOB SUMMARY   ************   FOR 01-310172
     W       G       C       P       A       S     TOT TIME
    75       3       1       3       7       6      95  8+WW
   237      21       7      10      10      12     297   |WWWWWWWW
   364      18      12      13      20      32     459   |WWWWWWWWWWWWS
   556      15      21      26      36      46     700   |WWWWWWWWWWWWWWWWWWWAS
   514      28      13      23      33      21     632  9+WWWWWWWWWWWWWWWWWWA
   618      19      25      22      42      12     738   |WWWWWWWWWWWWWWWWWWWWWA
   746      21      29      49      51      36     932   |WWWWWWWWWWWWWWWWWWWWWWWWWWPAS
   763      38      19      57      49      27     953   |WWWWWWWWWWWWWWWWWWWWWWWWWWGPA
   831      43      33      33      36      25    1001 10+WWWWWWWWWWWWWWWWWWWWWWWWWWWWGCPA
   829      30      24      53      24      22     982   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWP
   827      23      25      43      21      57    1001   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWPS
   871      34      41      76      24      77    1123   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCPPSS
   958      57      42      26      38      45    1166 11+WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCAS
  1073      54      49      15      50      42    1283   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCAS
  1056      53      56      20      64      55    1304   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCAAS
   974      53      33      17      67      51    1195   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCAAS
  1049      63      40      31      69      63    1315 12+WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCAAS
   993      54      31      22      97      40    1237   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGAAAS
  1058      50      48      27      86      57    1326   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCAAS
  1104      52      54      42      82      63    1397   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCPAAS
  1042      58      56      36      72      53    1317 13+WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCPAAS
  1141      68      50      27      65      59    1410   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCAAS
  1075      71      43      45      86      55    1375   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCPAAS
   977      55      43      55      58      43    1231   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCPAS
  1085      75      35      43      55      18    1311 14+WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCPA
  1006      58      47      25      41      11    1188   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCA
  1073      68      26      28      40      24    1259   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGA
  1090      78      32      28      61      14    1303   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCA
  1158      69      47      47      63      42    1426 15+WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCPAS
  1105      68      42      32      65      27    1339   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCPAA
  1253      65      56      50      76      42    1542   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCPAAS
  1316      72      51      37      90      53    1619   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCPAAS
  1233      60      55      29      68      48    1493 16+WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCAAS
  1275      51      35      39      64      48    1512   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGCPAAS
  1184      68      47      54      91      46    1490   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCPAAS
  1114      73      40      53      91      51    1422   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWGGCPAAS
   777      32      14      56      56      48     983 17+WWWWWWWWWWWWWWWWWWWWWWWWWWWGPAS
   775      38      36      46      48      37     980   |WWWWWWWWWWWWWWWWWWWWWWWWWWWGCPAS
   805      40      18      53      61      41    1018   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWGPAS
   670      32      22      32      56      27     839   |WWWWWWWWWWWWWWWWWWWWWWGPA
   637      30      22      39      55      28     811 18+WWWWWWWWWWWWWWWWWWWWWPA
   622      15      35      34      63      12     781   |WWWWWWWWWWWWWWWWWWWWWCPA
   569      20      19      26      44      16     694   |WWWWWWWWWWWWWWWWWWWA
   510      46      18      33      30      35     678   |WWWWWWWWWWWWWWWWWGPS
   516      18      16       8      39       5     602 19+WWWWWWWWWWWWWWWWWWA
   572      29       9       2      30      10     652   |WWWWWWWWWWWWWWWWWWW
   770      13      14      17      38      14     866   |WWWWWWWWWWWWWWWWWWWWWWWWWWWA
   787      25      12      15      29      13     886   |WWWWWWWWWWWWWWWWWWWWWWWWWWW
   691      19      11      18      44      13     796 20+WWWWWWWWWWWWWWWWWWWWWWWA
   653      15      20      15      38      14     755   |WWWWWWWWWWWWWWWWWWWWWWA
   569      24      15      12      40       6     666   |WWWWWWWWWWWWWWWWWWWA
   719      30       8      11      37      12     817   |WWWWWWWWWWWWWWWWWWWWWA
   748      41      14       7      36      11     857 21+WWWWWWWWWWWWWWWWWWWWWWWWWWGA
   732      34      19       4      42      11     842   |WWWWWWWWWWWWWWWWWWWWWWWWWGA
   680      37       8       5      48      15     793   |WWWWWWWWWWWWWWWWWWWWWWWGA
   558      42      16       4      57       4     681   |WWWWWWWWWWWWWWWWWWWWWGA
 -----  ------  ------  ------  ------  ------  ------ 22+----------+----------+----------+----------+----------+----------+----------+----------+
 46984    2366    1654    1694    2833    1800   57371   0         320        640        960        1280       1600       1920       2240       2560
```

```
ASUT    JOB SUMMARY  ***********   FOR 01-310172
     W      G      C      P      A      S    TOT TIME
    42      1      0      0      1      0     44  8+W
   100      0      0      0      6      4    110   |WWW
   195      3      3      1     32      4    238   |WWWWWWA
   366      9     13      0     63     12    463   |WWWWWWWWWWWA
   302      7      7      0     61     11    388  9+WWWWWWWWWA
   347      7     14      0     51     17    436   |WWWWWWWWWWA
   510     14      5      0     64     19    612   |WWWWWWWWWWWWWWWAA
   605     12      2      0     79     14    712   |WWWWWWWWWWWWWWWWWWAA
   560     10      3      0    105     18    696 10+WWWWWWWWWWWWWWWWWAAA
   604      4      5      0     87     13    713   |WWWWWWWWWWWWWWWWWWAA
   656      6      3      2     87     17    771   |WWWWWWWWWWWWWWWWWWWWAA
   672     11     13      0    101     21    818   |WWWWWWWWWWWWWWWWWWWWWAAA
   739     10     21      0    104     26    900 11+WWWWWWWWWWWWWWWWWWWWWWWAAA
   792      7     24      0    106     28    957   |WWWWWWWWWWWWWWWWWWWWWWWWAAA
   778     15     28      2    101     29    953   |WWWWWWWWWWWWWWWWWWWWWWWWAAA
   740      9     36      0    120     26    931   |WWWWWWWWWWWWWWWWWWWWWWWCAAA
   700     17     20      1    114     20    872 12+WWWWWWWWWWWWWWWWWWWWWAAA
   849      9     23      0    116     11   1008   |WWWWWWWWWWWWWWWWWWWWWWWWWWAAA
   941     15     15      2     94     20   1087   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWWAA
   896     14     12      2    144     13   1081   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWAAAA
   754     13     16      0    138     13    934 13+WWWWWWWWWWWWWWWWWWWWWWWAAAA
   786     15     17      1    123     10    952   |WWWWWWWWWWWWWWWWWWWWWWWWAAA
   760     16     16      1    123     14    930   |WWWWWWWWWWWWWWWWWWWWWWWAAA
   793     13     21      2    130      7    966   |WWWWWWWWWWWWWWWWWWWWWWWWAAAA
   767     15     20      0     86      8    896 14+WWWWWWWWWWWWWWWWWWWWWWWAA
   789     16     12      2    108     11    938   |WWWWWWWWWWWWWWWWWWWWWWWWAAA
   789     23     28      3    107     13    963   |WWWWWWWWWWWWWWWWWWWWWWWWAAA
   902     16     23      1     74      9   1025   |WWWWWWWWWWWWWWWWWWWWWWWWWWWWAA
   812      8     28      0     96     13    957 15+WWWWWWWWWWWWWWWWWWWWWWWWWAAA
   787      4     39      0    109      9    948   |WWWWWWWWWWWWWWWWWWWWWWWWCAAA
   736     10     34      0    113      9    902   |WWWWWWWWWWWWWWWWWWWWWWWCAAA
   821     14     35      0    150     18   1038   |WWWWWWWWWWWWWWWWWWWWWWWWWCAAAA
   763     11     22      5    144     22    967 16+WWWWWWWWWWWWWWWWWWWWWWWAAAA
   834     13     21      1    161     28   1058   |WWWWWWWWWWWWWWWWWWWWWWWWWWAAAAA
   820     24     26      3    111     19   1003   |WWWWWWWWWWWWWWWWWWWWWWWWWAAA
   814     15     23      6    102     15    975   |WWWWWWWWWWWWWWWWWWWWWWWWWAAA
   586      7     27      5     63     12    700 17+WWWWWWWWWWWWWWWWWWA
   606      9     25      8     46     17    711   |WWWWWWWWWWWWWWWWWWA
   562      8     22      0     73     19    684   |WWWWWWWWWWWWWWWWWAA
   451     14     21      0     66      7    559   |WWWWWWWWWWWWWWAA
   427     10      7      0     76     21    541 18+WWWWWWWWWWWWWAA
   423      4      5      1     79      9    521   |WWWWWWWWWWWWWAA
   373     13      6      1     81      5    479   |WWWWWWWWWWWAA
   333     12     15      9     66      8    443   |WWWWWWWWWWAA
   296     11     11      8     62     11    399 19+WWWWWWWWWA
   364     16     12     11     52      7    462   |WWWWWWWWWWWA
   428      9     17     14     68     13    549   |WWWWWWWWWWWWWWA
   500     10     17      6    106     12    651   |WWWWWWWWWWWWWWWAAA
   427      7      4      1     90     13    542 20+WWWWWWWWWWWWWAA
   417     10     13      0     81     10    531   |WWWWWWWWWWWWWAA
   433      4     14      5     76     27    559   |WWWWWWWWWWWWWAA
   518      5     25      5     73     24    650   |WWWWWWWWWWWWWWWWAA
   530      7     24      1    106     15    683 21+WWWWWWWWWWWWWWWWAAA
   482      5     23      3     71     21    605   |WWWWWWWWWWWWWWWAA
   526      9     31      1     74     42    683   |WWWWWWWWWWWWWWWWWAS
   446      6     10      1    107     18    588   |WWWWWWWWWWWWWWAA
 ----- ------ ------ ------ ------ ------ ------ 22+---------+---------+---------+---------+---------+---------+---------+---------+
 33255    582    957    115   5627    854  40790  0        320       640       960      1280      1600      1920      2240      2560
```

7094 PRODUCTIVITY SOARS

Joyce Walton

As announced last month, the 7094 operation is now involved in a Users' Consortium agreement. While maintaining the standard service level and charging rates for non-Consortium users, we have been providing as much computing for Consortium members as the installation can handle, in exchange for guaranteed payment of our costs. To exploit this computing bargain, (zero incremental cost beyond a certain level), our Consortium members have been computing at a great rate.

The charts on the next page show the daily and cumulative daily usage in some detail. The usage patterns as well as volumes have also changed with the advent of more long CPU-oriented Consortium jobs, as the following figures for January show:

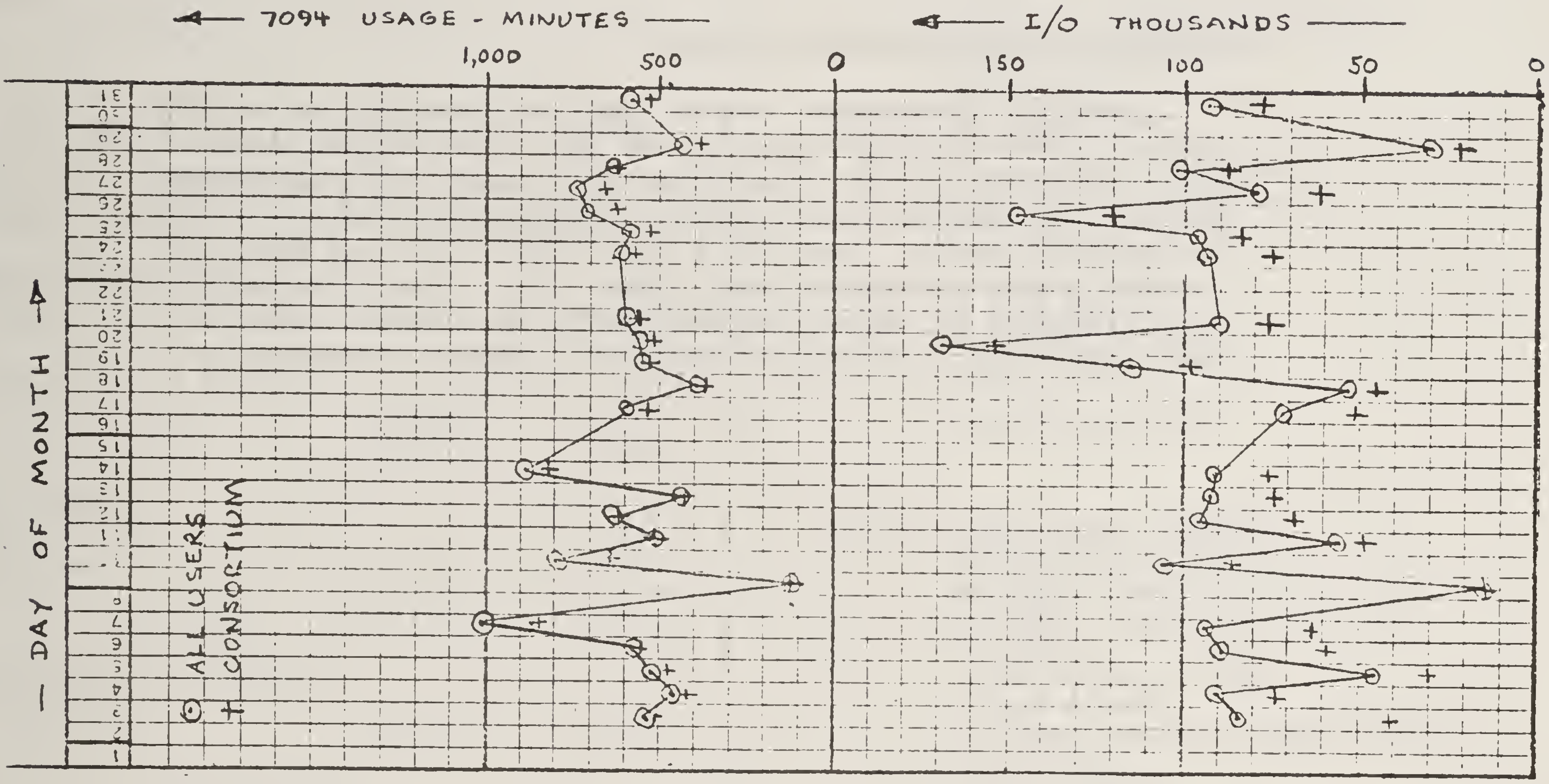
	All Users	Consortium	Other
Number of Jobs	909	637	272
%	100	70	30
CPU Minutes	13,545	12,471	1,074
%	100	92	8
CPU Minutes per job:	14.9	19.6	3.9
I/O Thousands:	2,002	1,593	409
I/O per job:	2,200	2,500	1,500
I/O per CPU Minute:	148	128	391

By contrast, the December figures show not only less activity, but more input/output activity per computing minute because of the then higher proportion of Datatext statistical jobs.

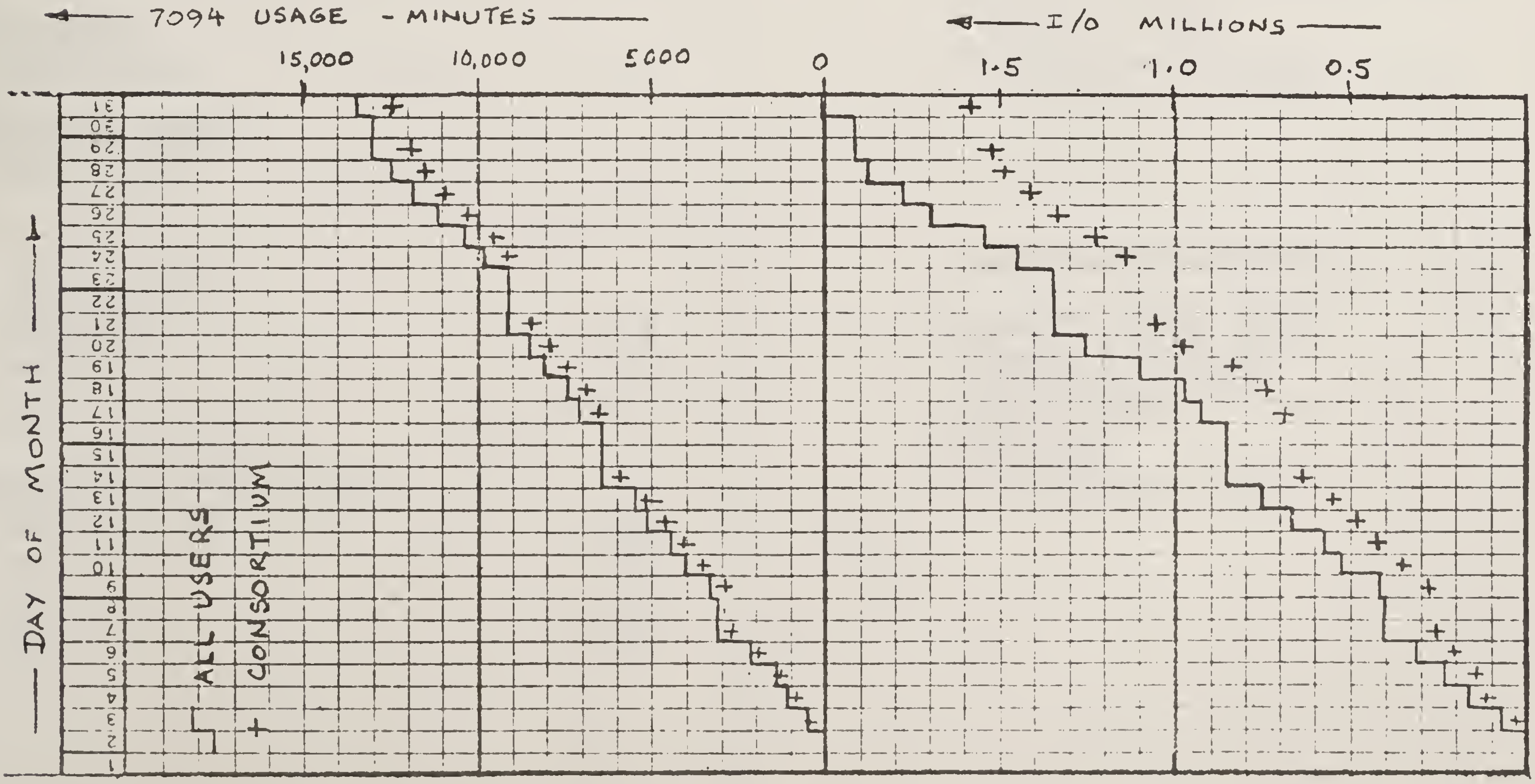
	December	January Change
Number of Jobs:	726	+ 25%
CPU Minutes:	5,555	+ 144%
CPU Minutes per Job:	7.6	+ 96%
I/O Thousands:	898	+ 122%
I/O per Job:	1,200	+ 83%
I/O per CPU Minute:	162	- 9%

7094 PRODUCTIVITY, JANUARY 1972

DAILY USAGE



CUMULATIVE DAILY USAGE



WARNING: 7094 CHARACTER SET GAPS

Certain characters which can be punched on an 029 Keypunch have no equivalent in the 026 Character set used by the 7094, and are not translated into legal 7094 characters by the 1401 Card-to-Tape program. Examples of these are the Underscore, which translates into Octal 75, and Vertical Stroke, which translates into Octal 37. Such characters will result in fatal diagnostics by the Fortran compiler, even when used in Hollerith strings in FORMAT statements.

UTCC DIRECTORY

	ROOM	PHONE 928-
DIRECTOR		
John C. Wilson	SF105	6496
ASSISTANT DIRECTOR		
C. Alan Ford	SF105	2991
TECHNICAL EDITOR		
Janet Marsh	49 St. Geo.	6131
USER LIAISON OFFICER		
Bill Greene	SF128	2694
ADMINISTRATION MANAGER		
Jerry Palter	SF131	8948
AUTHORIZATION CLERKS		
M. A. Rankin	SF115A	8702
Cathy Pidcock	SF115A	8703
S/370 SERVICES		
MANAGER		
Dave McNaughton	SF136	6281
INPUT/OUTPUT SERVICES SUPERVISOR		
Alan Jones	SF112	7092
USER SERVICES SUPERVISOR		
Stan Yagi	SF112	7331
PROGRAM ADVISORS	SF103	8599
INTERACTIVE TERMINAL SYSTEMS MANAGER		
Sam Goldfarb	49 St. Geo.	3787
7094 MANAGER		
Joyce Walton	BT 1207	7094
DEVELOPMENT MANAGER		
Alan Wickens	49 St. Geo.	6135

- -

JOB STATUS QUERIES:	
SYSTEM/370	7373
7094	7094
Auxiliary Services	6465
INTERACTIVE TERMINAL SYSTEMS:	
System Status	6234
APL	7200
ATS	7100
CPS	6200

UTCC COMPUTER EQUIPMENT

(a) SYSTEM/370 MODEL 165

- located in SF 106/110/111
- provides General Purpose Job Stream and High Speed Job Stream services
- 2048K bytes of core
- 16 disk drives
- 1 drum
- 6 magnetic tape drives (4 9-track and 2 7-track)
- 6 display consoles
- 5 printers
- 4 card readers
- 2 card punches
- 6 remote terminals
- 1 paper tape reader

- OS/MVT with HASP

(b) SYSTEM/360 MODEL 65

- located in Room 333 McLennan Physical Laboratories
- provides Interactive Systems service
- 1536K bytes of core
- 8 disk drives
- 2 9-track magnetic tape drives
- 1 printer
- 1 card reader
- 1 card punch
- 70 2741 typewriter terminals

- OS/MVT with CPS, ATS, and APL

(c) 7094 II

- located in Room 1203 Burton Tower
- 32K words of core
- 1 disk
- 8 magnetic tape drives
- input/output via a 1401 computer

UTCC AUXILIARY EQUIPMENT

- located in SF Room 109
- System/360 Model 20 for unit record services
- CALCOMP plotter (11" and 30")
- card sorter
- decollator
- 519 reproducing punch

COMPUTER CENTRE,
UNIVERSITY OF TORONTO,
TORONTO, ONTARIO.